

Access DB# 496**SEARCH REQUEST FORM****Scientific and Technical Information Center**

Requester's Full Name: Roger Schoepel Examiner #: 68244 Date: 4/20/02  
Art Unit: 3672 Phone Number 301-2147 Serial Number: 5,791,422  
Mail Box and Bldg/Room Location: PK 5-2012 Results Format Preferred (circle): PAPER DISK E-MAIL  
08/815745

**If more than one search is submitted, please prioritize searches in order of need.**

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Rock Bit with Hard Facing etc.

Inventors (please provide full names): Liang et al

Earliest Priority Filing Date: \_\_\_\_\_

*\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

*litigation  
patent # 5 791 422*

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**STAFF USE ONLY**

	Type of Search	Vendors and cost where applicable
Searcher: <u>Tamie Tbe</u>	NA Sequence (#) _____	STN _____
Searcher Phone #: <u>306-5967</u>	AA Sequence (#) _____	Dialog <u>7</u>
Searcher Location: <u>6x12</u>	Structure (#) _____	Questel/Orbit <u>7</u>
Date Searcher Picked Up: <u>4/10</u>	Bibliographic _____	Dr.Link _____
Date Completed: <u>4/10</u>	Litigation <u>X</u>	Lexis/Nexis <u>7</u>
Searcher Prep & Review Time: <u>5</u>	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
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Selected file: **CRXX**

CRXX (CLAIMS Current Legal Status)  
Legal Status actions current thru march 26, 2002 (2002-13/UP)  
Reassignment data current as of december 12, 2001.  
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Covers 1970 thru weekly update (2002-11)  
For technical content information : see INFO LITA

Cluster : LEGAL  
Databases : LGST, CRXX, PAST, LITA

Search statement 1

**Query/Command : us5791422/pn**

Term not in index/PN-LITA : US5791422

LGST	1
CRXX	1
PAST	1
LITA	0

**\*\* SS 1 : Results 3**

Search statement 2

**Query/Command : prt full 1-3**

1 / 3 LGST (1 / 1) - @LEGSTAT

PN - US 5791422 [US5791422]

AP - US 815745/97 19970312 [1997US-0815745]

DT - US-P

ACT - 19970312 US/AE-A

APPLICATION DATA (PATENT)

US 815745/97 19970312 [1997US-0815745]

19970714 US/AS02

ASSIGNMENT OF ASSIGNOR'S INTEREST

SMITH INTERNATIONAL, INC. 16740 HARDY STREET HOUSTON, TEXAS 77032

\* LIANG, DAH-BEN : 19970311; WHITE, Alysia C. : 19970311; FANG,

ZHIGANG : 19970311; SUE, JIINJEN ALBERT : 19970310

19980811 US/A

PATENT

20001003 US/RF

REISSUE APPLICATION FILED

20000810

UP - 2000-40

2 / 3 CRXX (1 / 1) - @CLAIMS/RRX

AN - 3021815

PN - 5,791,422 A 19980811 [US5791422]

PT - M (Mechanical)

PA - Smith International Inc

ACT - 20000810 REISSUE REQUESTED

Issue Date of O.G.: 20001003

Reissue Request Number: 09/637764

Examination Group responsible for Reissue process: 3625

UP - 2000-40

UACT - 2000-10-03

3 / 3 PAST (1 / 1) - @PAST

AN - 200040-000915

PN - 5791422 A [US5791422]

DT - A (UTILITY)

OG - 2000-10-03

CO - REA

ACT - REISSUE APPLICATION FILED

SH - REISSUE APPLICATION FILED

Source: All Sources > [Area of Law - By Topic](#) > [Patent Law](#) > [Patents](#) > [U.S. Patents](#) > [Utility, Design and Plant Patents](#) 

Terms: patno is 5,791,422 ([Edit Search](#))

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*Pat. No. 5791422, \**

**5,791,422**

♦ [GET 1st DRAWING SHEET OF 1](#)


Aug. 11, 1998

Rock bit with hardfacing material incorporating spherical cast carbide particles

**APPL-NO:** 815,745

**CORE TERMS:** carbide, particle, cone, tungsten, hardfacing, bit, rock, teeth, spherical, mesh...

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Source: All Sources > [Area of Law - By Topic](#) > [Patent Law](#) > [Patents](#) > [U.S. Patents](#) > [Utility, Design and Plant Patents](#) 

Terms: patno is 5,791,422 ([Edit Search](#))

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Segments: Appl-no, Certcorr, Disclaimer, Lit-reex, Patno, Reex-cert, Title

Date/Time: Wednesday, April 10, 2002 - 2:13 PM EDT

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- If applicable, look for all dates.

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*Patent  
news; current*

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Set	Items	Description
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S1	1	PN=US 5791422
?t	1/39/1	

1/39/1

DIALOG(R)File 345:Inpadoc/Fam.& Legal Stat  
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14595982

Basic Patent (No,Kind,Date): GB 9701890 A0 19970319 <No. of Patents: 013>

Patent Family:

Patent No	Kind	Date	Applic No	Kind	Date	
CA 2196494	AA	19970803	CA 2196494	A	19970131	
CA 2199780	AA	19970912	CA 2199780	A	19970312	
GB 9701890	A0	19970319	GB 971890	A	19970130	(BASIC)
GB 9705095	A0	19970430	GB 975095	A	19970312	
GB 2309707	A1	19970806	GB 971890	A	19970130	
GB 2311085	A1	19970917	GB 975095	A	19970312	
GB 2309707	B2	20000209	GB 971890	A	19970130	
GB 2311085	B2	20000308	GB 975095	A	19970312	
SG 4600767	A1	19980220	SG 9700232	A	19970201	
SG 5200929	A1	19980928	SG 9700715	A	19970312	
US 5715899	A	19980210	US 597476	A	19960202	
US 5791422	A	19980811	US 815745	A	19970312	
US 5944127	A	19990831	US 851383	A	19970505	

Priority Data (No,Kind,Date):

US 597476 A 19960202  
US 14225 P 19960327  
US 14731 P 19960312  
US 815745 A 19970312  
US 851383 A 19970505  
US 597476 A2 19960202

PATENT FAMILY:

CANADA (CA)

Patent (No,Kind,Date): CA 2196494 AA 19970803  
HARD FACING MATERIAL FOR ROCK BITS (English; French)  
Patent Assignee: SMITH INTERNATIONAL (US)  
Author (Inventor): LIANG DAH-BEN (US); KESHAVAN MADAPUSI K (US);  
WHITE ALYSIA C (US)  
Priority (No,Kind,Date): US 597476 A 19960202  
Applic (No,Kind,Date): CA 2196494 A 19970131  
IPC: \* E21B-010/16  
CA Abstract No: \* 127(24)335368Z  
Derwent WPI Acc No: \* C 97-366496  
Language of Document: English  
Patent (No,Kind,Date): CA 2199780 AA 19970912  
ROCK BIT WITH HARDFACING MATERIAL INCORPORATING SPHERICAL CAST CARBIDE  
PARTICLES (English; French)  
Patent Assignee: SMITH INTERNATIONAL (US)  
Author (Inventor): LIANG DAH-BEN (US); FANG ZHIGANG (US); JIINJEN  
ALBERT SUE (US); WHITE ALYCIA C (US)  
Priority (No,Kind,Date): US 14225 P 19960327; US 14731 P  
19960312  
Applic (No,Kind,Date): CA 2199780 A 19970312  
IPC: \* E21B-010/08  
Derwent WPI Acc No: \* C 97-427919  
Language of Document: English

GREAT BRITAIN (GB)

Patent (No,Kind,Date): GB 9701890 A0 19970319  
IMPROVED HARD FACING MATERIAL FOR ROCK BITS (English)  
Patent Assignee: SMITH INTERNATIONAL



Priority (No,Kind,Date): US 597476 A 19960202  
 Applic (No,Kind,Date): GB 971890 A 19970130  
 CA Abstract No: \* 127(24)335368Z  
 Derwent WPI Acc No: \* C 97-366496  
 Language of Document: English  
 Patent (No,Kind,Date): GB 9705095 A0 19970430  
 ROCK BIT WITH HARDFACING MATERIAL INCORPORATING SPHERICAL CAST CARBIDE PARTICLES (English)  
 Patent Assignee: SMITH INTERNATIONAL  
 Priority (No,Kind,Date): US 14731 P 19960312; US 14225 P 19960327  
 Applic (No,Kind,Date): GB 975095 A 19970312  
 CA Abstract No: \* 128(03)025638P  
 Derwent WPI Acc No: \* C 97-427919  
 Language of Document: English  
 Patent (No,Kind,Date): GB 2309707 A1 19970806  
 IMPROVED HARD FACING MATERIAL FOR ROCK BITS (English)  
 Patent Assignee: SMITH INTERNATIONAL (US)  
 Author (Inventor): LIANG DAH-BEN; WHITE ALYSIA C; KESHAVAN MADAPUSI K  
 Priority (No,Kind,Date): US 597476 A 19960202  
 Applic (No,Kind,Date): GB 971890 A 19970130  
 National Class: \* C7A AA28Y O; C7A AA41Y O; C7A AA53Y O; C7A AA58Y O; C7A AA61Y O; C7A AA696 O; C7A AA698 O; C7A AB249 J; C7A AB279 J; C7A AB289 J; C7A AB309 J; C7A AB319 J; C7A AB339 J; C7A AB349 J; C7A AB369 J; C7A AB37X J; C7A AB37Y J; C7A AB399 J; C7A AB419 J; C7A AB42Y J; C7A AB420 J; C7A AB459 J; C7A AB489 J; C7A AB50Y J; C7A AB500 J; C7A AB539 J; C7A AB549 J; C7A AB559 J; C7A AB610 J; C7A AB613 J; C7A AB616 J; C7A AB619 J; C7A AB62X J; C7A AB621 J; C7A AB624 J; C7A AB627 J; C7A AB630 J; C7A AB635 J; C7A AB66X J; C7A AB661 J; C7A AB663 J; C7A AB665 J; C7A AB666 J; C7A AB667 J; C7A AB668 J; C7A AB669 J; C7A AB670 J; C7A AB672 J; C7A AB675 J; C7A AB70X J; C7A AB702 J; C7A A72Y O; U1S S1761  
 IPC: \* C22C-029/08  
 CA Abstract No: \* 127(24)335368Z; 127(24)335368Z  
 Derwent WPI Acc No: \* C 97-366496; C 97-366496  
 Language of Document: English  
 Patent (No,Kind,Date): GB 2311085 A1 19970917  
 A ROCK BIT WITH HARDFACING COMPRISING SPHERICAL CAST TUNGSTEN CARBIDE PARTICLES (English)  
 Patent Assignee: SMITH INTERNATIONAL (US)  
 Author (Inventor): LIANG DAH-BEN; WHITE ALYSIA C; FANG ZHIGANG; SUE JIINJEN  
 Priority (No,Kind,Date): US 14731 P 19960312; US 14225 P 19960327  
 Applic (No,Kind,Date): GB 975095 A 19970312  
 National Class: \* C7A AA23Y O; C7A AA25Y O; C7A AA28Y O; C7A AA33Y O; C7A AA35Y O; C7A AA39Y O; C7A AA41Y O; C7A AA51Y O; C7A AA53Y O; C7A AA58Y O; C7A AA61Y O; C7A A71X O; C7A A72Y O; E1F FFD FFD  
 IPC: \* E21B-010/16; C22C-032/00; E21B-010/50  
 CA Abstract No: \* 128(03)025638P; 128(03)025638P  
 Derwent WPI Acc No: \* C 97-427919; C 97-427919  
 Language of Document: English  
 Patent (No,Kind,Date): GB 2309707 B2 20000209  
 IMPROVED HARD FACING MATERIAL FOR ROCK BITS (English)  
 Patent Assignee: SMITH INTERNATIONAL (US)  
 Author (Inventor): LIANG DAH-BEN (US); WHITE ALYSIA CANSON (US); KESHAVAN MADAPUSI K (US)  
 Priority (No,Kind,Date): US 597476 A 19960202  
 Applic (No,Kind,Date): GB 971890 A 19970130  
 National Class: \* C7A AA28Y O; C7A AA41Y O; C7A AA53Y O; C7A AA58Y O; C7A AA61Y O; C7A AA696 O; C7A AA698 O; C7A AB249 J; C7A AB279 J; C7A AB289 J; C7A AB309 J; C7A AB319 J; C7A AB339 J; C7A AB349 J; C7A AB369 J; C7A AB37X J; C7A AB37Y J; C7A AB399 J; C7A AB419 J; C7A AB42Y J; C7A AB420 J; C7A AB459 J; C7A AB489 J; C7A AB50Y J; C7A AB500 J; C7A AB539 J; C7A AB549 J; C7A AB559 J; C7A AB610 J; C7A AB613 J; C7A AB616 J; C7A AB619 J; C7A AB62X J; C7A AB621 J; C7A AB624 J; C7A AB627 J; C7A AB630 J; C7A AB635 J; C7A AB66X J; C7A AB661 J; C7A AB663 J; C7A AB665 J; C7A AB666 J; C7A AB667 J; C7A

AB668 J; C7A AB669 J; C7A AB670 J; C7A AB671 J; C7A AB675 J; C7A  
AB70X J; C7A AB70Y J; C7A A72Y O  
IPC: \* C22C-029/08  
CA Abstract No: \* 127(24)335368Z  
Derwent WPI Acc No: \* C 97-366496  
Language of Document: English  
Patent (No,Kind,Date): GB 2311085 B2 20000308  
ROCK BIT WITH HARDFACING MATERIAL INCORPORATING SPHERICAL CAST CARBIDE  
PARTICLES (English)  
Patent Assignee: SMITH INTERNATIONAL (US)  
Author (Inventor): LIANG DAH-BEN (US); WHITE ALYSIA CANSON (US);  
FANG ZHIGANG (US); SUE JIINJEN ALBERT (US)  
Priority (No,Kind,Date): US 14731 P 19960312; US 14225 P  
19960327  
Applic (No,Kind,Date): GB 975095 A 19970312  
National Class: \* C7A AA23Y O; C7A AA25Y O; C7A AA28Y O; C7A AA33Y O;  
C7A AA35Y O; C7A AA39Y O; C7A AA41Y O; C7A AA51Y O; C7A AA53Y O; C7A  
AA58Y O; C7A AA61Y O; C7A A71X O; C7A A72Y O; E1F FFD FFD  
IPC: \* E21B-010/16; C22C-032/00; E21B-010/50  
CA Abstract No: \* 128(03)025638P  
Derwent WPI Acc No: \* C 97-427919  
Language of Document: English

GREAT BRITAIN (GB)

Legal Status (No,Type,Date,Code,Text):  
GB 2309707 P 19960202 GB AA PRIORITY (PATENT)  
US 597476 A 19960202  
GB 2309707 P 19970130 GB AE APPLICATION DATA (APPL.  
DATA)  
GB 971890 A 19970130  
GB 2309707 P 19970806 GB A1 APPLICATION PUBLISHED  
(APPL. PUBLISHED)  
GB 2309707 P 20000209 GB B2 PATENT GRANTED  
GB 2311085 P 19960312 GB AA PRIORITY  
US 14731 P 19960312  
GB 2311085 P 19960327 GB AA PRIORITY  
US 14225 P 19960327  
GB 2311085 P 19970312 GB AE APPLICATION DATA (APPL.  
DATA)  
GB 975095 A 19970312  
GB 2311085 P 19970917 GB A1 APPLICATION PUBLISHED  
(APPL. PUBLISHED)  
GB 2311085 P 20000308 GB B2 PATENT GRANTED

SINGAPORE (SG)

Patent (No,Kind,Date): SG 4600767 A1 19980220  
IMPROVED HARD FACING MATERIAL FOR ROCK BITS (English)  
Patent Assignee: SMITH INTERNATIONAL  
Author (Inventor): LIANG DAH-BEN; KESHAVAN MADAPUSI K; WHITE ALYSIA C  
Priority (No,Kind,Date): US 597476 A 19960202  
Applic (No,Kind,Date): SG 9700232 A 19970201  
IPC: \* B24D-003/02  
CA Abstract No: \* 127(24)335368Z  
Derwent WPI Acc No: \* C 97-366496  
Language of Document: English  
Patent (No,Kind,Date): SG 5200929 A1 19980928  
ROCK BIT WITH HARDFACING MATERIAL INCORPORATING SPHERICAL CAST CARBIDE  
PARTICLES (English)  
Patent Assignee: SMITH INTERNATIONAL  
Author (Inventor): LIANG DAH-BEN; FANG ZHIGANG; WHITE ALYCIA C; SUE  
JIINJEN ALBERT  
Priority (No,Kind,Date): US 14731 P 19960312; US 14225 P  
19960327  
Applic (No,Kind,Date): SG 9700715 A 19970312  
IPC: \* E21B; B23K  
CA Abstract No: \* 128(03)025638P  
Derwent WPI Acc No: \* C 97-427919  
Language of Document: English

UNITED STATES OF AMERICA (US)

Patent (No,Kind,Date): US 5715899 A 19980210  
 HARD FACING MATERIAL FOR ROCK BITS (English)  
 Patent Assignee: SMITH INTERNATIONAL (US)  
 Author (Inventor): LIANG DAH-BEN (US); WHITE ALYSIA C (US); KESHAVAN  
 MADAPUSI K (US)  
 Priority (No,Kind,Date): US 597476 A 19960202  
 Applic (No,Kind,Date): US 597476 A 19960202  
 National Class: \* 175374000; 051309000; 075252000; 501087000  
 IPC: \* B24D-003/02; E21B-010/50  
 CA Abstract No: \* 127(24)335368Z  
 Derwent WPI Acc No: \* C 97-366496  
 Language of Document: English  
 Patent (No,Kind,Date): US 5791422 A 19980811  
 ROCK BIT WITH HARDFACING MATERIAL INCORPORATING SPHERICAL CAST CARBIDE  
 PARTICLES (English)  
 Patent Assignee: SMITH INTERNATIONAL (US)  
 Author (Inventor): LIANG DAH-BEN (US); WHITE ALYSIA C (US); FANG  
 ZHIGANG (US); SUE JIINJEN ALBERT (US)  
 Priority (No,Kind,Date): US 815745 A 19970312; US 14731 P  
 19960312; US 14225 P 19960327  
 Applic (No,Kind,Date): US 815745 A 19970312  
 National Class: \* 175374000; 175425000; 428539500  
 IPC: \* E21B-010/00  
 CA Abstract No: \* 128(03)025638P  
 Derwent WPI Acc No: \* C 97-427919  
 Language of Document: English  
 Patent (No,Kind,Date): US 5944127 A 19990831  
 HARDFACING MATERIAL FOR ROCK BITS (English)  
 Patent Assignee: SMITH INTERNATIONAL (US)  
 Author (Inventor): LIANG DAH-BEN (US); WHITE ALYSIA C (US); FANG  
 ZHIGANG (US); SUE JIINJEN ALBERT (US)  
 Priority (No,Kind,Date): US 851383 A 19970505; US 597476 A2  
 19960202; US 14731 P 19960312  
 Applic (No,Kind,Date): US 851383 A 19970505  
 Addnl Info: 5715899 Patented  
 National Class: \* 175374000; 051309000; 501087000  
 IPC: \* B24D-003/02; E21B-010/50  
 CA Abstract No: \* 127(24)335368Z; 128(03)025638P  
 Derwent WPI Acc No: \* C 97-366496; C 97-427919  
 Language of Document: English

UNITED STATES OF AMERICA (US)

Legal Status (No,Type,Date,Code,Text):  
 US 5715899 P 19960202 US AE APPLICATION DATA (PATENT)  
 (APPL. DATA (PATENT))  
 US 597476 A 19960202  
 US 5715899 P 19960903 US AS02 ASSIGNMENT OF ASSIGNOR'S  
 INTEREST  
 SMITH INTERNATIONAL, INC. 16740 HARDY STREET  
 HOUSTON, TEXAS 77032 ; LIANG, DAH-BEN :  
 19960722; WHITE, ALYSIA C. : 19960722;  
 KESHAVAN, MADAPUSI K. : 19960722  
 US 5715899 P 19980210 US A PATENT  
 US 5791422 P 19960312 US AA PRIORITY  
 US 14731 P 19960312  
 US 5791422 P 19960327 US AA PRIORITY  
 US 14225 P 19960327  
 US 5791422 P 19970312 US AE APPLICATION DATA (PATENT)  
 (APPL. DATA (PATENT))  
 US 815745 A 19970312  
 US 5791422 P 19970714 US AS02 ASSIGNMENT OF ASSIGNOR'S  
 INTEREST  
 SMITH INTERNATIONAL, INC. 16740 HARDY STREET  
 HOUSTON, TEXAS 77032 ; LIANG, DAH-BEN :  
 19970311; WHITE, ALYSIA C. : 19970311; FANG,  
 ZHIGANG : 19970311; SUE, JIINJEN ALBERT :

		19970310	
US 5791422	P	19980811 US A	PATENT
US 5791422	P	20001003 US RF	REISSUE APPLICATION FILED
		(REISSUE APPL. FILED)	
		20000810	
US 5944127	P	19960202 US AA	PRIORITY
		US 597476 A2	19960202
US 5944127	P	19960312 US AA	PRIORITY
		US 14731 P	19960312
US 5944127	P	19970505 US AE	APPLICATION DATA (PATENT)
		(APPL. DATA (PATENT))	
		US 851383 A	19970505
US 5944127	P	19971103 US AS02	ASSIGNMENT OF ASSIGNOR'S
		INTEREST	
		SMITH INTERNATIONAL, INC. 16740 HARDY STREET	
		HOUSTON, TEXAS 77032 ; LIANG, DAH-BEN :	
		19970512; WHITE, ALYSIA C. : 19970512; FANG,	
		ZHIGANG : 19970512; SUE, JIINJEN ALBERT :	
		19970512	
US 5944127	P	19990831 US A	PATENT